

MINE SAFETY TRAINING

# HANDBOOK



Active Training Tools for Mine Safety Trainers



THE UNIVERSITY  
OF ARIZONA®

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MINING SAFETY  
AND HEALTH

# ACKNOWLEDGMENTS

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We thank the mine safety trainers who contributed their ideas, advice and expertise as we compiled this handbook. We are especially grateful to these partner companies and individuals:

- Arizona State Mine Inspector
- BHP Billiton
- Scott Boyes
- Freeport McMoRan Copper and Gold
- Steve Gravley
- Deb Hutchison
- Michelle Lutz
- McCraren Compliance
- Sean McCraren
- Resolution Copper
- Mike Runner
- Salt River Materials Group
- Fred Samson
- Vulcan Materials

Alpha Foundation for the Improvement of Mine Safety and Health Grant AFC113-6

*This study was sponsored by the Alpha Foundation for the Improvement of Mine Safety and Health, Inc. (ALPHA FOUNDATION). The views, opinions and recommendations expressed herein are solely those of the authors and do not imply any endorsement by the ALPHA FOUNDATION, its Directors and staff.*

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# INTRODUCTION: A NEW WAY TO TRAIN

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*Mine safety training saves lives. In 1978, the year the Mine Safety and Health Administration was established, 242 miners died in mining accidents. In 2012 the number of deaths had dropped to 36. Training the people who work in the mining industry – and retraining annually – helps reduce deaths, injuries and illnesses.*

**– Mine Safety and Health Administration**

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## Welcome to your new active training handbook!

As you look through this handbook, you'll discover the key characteristics of active training, strategies for handling group dynamics, tips to enhance your PowerPoint presentation and plenty of engaging activities you can use to help trainees learn, retain and apply safety standards.

What is active training? Active training involves asking questions, sharing experiences, giving feedback and teaming up to solve problems; it is a social and memorable way to convey information and encourage active participation.

Passive training, on the other hand, involves sitting and listening to someone lecture. Educational research shows that active training is a more effective way to teach – especially adults.<sup>7</sup>

This handbook will help you understand why active training is more powerful than passive presentations – and show you how to incorporate active training techniques to help you train more effectively. When you understand how

your trainees learn and respond to information, you can dramatically improve your training and increase retention of key safety procedures.

## Telling is Not Training

To become a great trainer using active training methods, you need to remember that you are not shirking your responsibility when you step out of the way and allow trainees to interact with each other. When trainees interact with each other, they will learn more. And they will retain more.

Remind yourself as often as necessary that “telling isn't training.” Not everyone learns the same way. That's why it is so important to incorporate a variety of teaching techniques in your mine safety training. Active training helps you connect with your trainees and have a far greater impact.

## Choose Your Activities

Let's get started.

We invite you to use these active training tools and see for yourself how well they work – for both you and your trainees. We encourage you

to be creative about when and how you incorporate these activities throughout the day.

Experiment and see what works best. And please give us your feedback along the way. We plan to update this handbook with suggestions from your experiences in the field.

# MOTIVATION IN TRAINING

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*Mining companies spend millions of dollars each year on training, including MSHA-required courses such as annual refresher. Yet illnesses, injuries and accidents continue to occur. Research from other industries suggests that active learning can result in increased training effectiveness and reduction in health and safety incidents.*

– Western Mining Safety and Health Training Resource Center

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## Guide Trainees to Actively Participate

As we all know, folks who sit through mandated safety trainings don't necessarily want to be there. Motivating a group like that can be very difficult.

Here are a few insights from research on motivation that will help you understand – and motivate – the unmotivated.

There are two types of motivation for trainees – mastery and performance.

➤ **Mastery** means the trainee wants to do well at the task for the sake of doing well at the task – for his or her own personal satisfaction. This is internal motivation.

➤ **Performance** means the trainee wants to do well in the training or on the task because he or she is concerned with getting evaluated by his trainer or supervisor. This is external motivation.

**Transfer** means the trainee can take what is learned in training and apply it to situations in the workplace. Transfer is more likely to happen when the trainee is motivated by mastery, rather than performance.

### Transfer is more likely to happen when the trainee:

- Believes he or she can successfully produce desired outcomes.
- Understands why the training is important. The trainee is not just sitting there “putting in the hours.”
- Knows what the training objectives are. Training objectives are the goals for the training – what you want the trainees to know or be able to do by the end of the training.

A lot of safety trainings stay within the realm of performance. The trainees remain passive, waiting for the end of the day when they will take a multiple choice quiz – often with the instructor giving them the answers – then get their certificates and leave.

Training activities that motivate trainees to master the knowledge are more active – the trainee is required to think, explain procedures to others and interact with the group and the trainer. All of these things tap into a deeper internal motivation that we all share. We want to be good at our jobs – not for others, for the trainer or the boss – but for ourselves, for our own well-being and satisfaction.

## Start the Day

The way you begin the day in an active training can make all the difference.

Trainees need to understand right away that you will be asking them to participate in their learning – actively. You need to stress why this is so important – because they work together on site, they also benefit from working together in training.

When trainees have a chance to get to know each other – to learn each other’s names, and a few details about each other – safety training comes alive and is more meaningful.

It’s easier to care about the safety of people we know than people we don’t know. Giving trainees time to interact with one another can create motivation for learning and for transfer back at the worksite.

# CHARACTERISTICS OF ACTIVE TRAINING

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As adults, we learn in specific ways. There are four key characteristics that we share as adult learners:

- **Experience** – We come to the classroom with life and work experiences that can help motivate us to learn.
- **Collaboration** – We like to take responsibility for our learning. We like to collaborate with the instructor and our co-workers – to design training, do activities and evaluate ourselves.
- **Problem solving** – We are problem-centered or task-specific in our orientation to learning. We learn best by solving problems or

completing tasks that require us to think for ourselves or think outside the box. We would rather think for ourselves than be told the answers.

- **Motivation** – We need to know why what we are learning is important. Training is easier when we can directly experience the real-life situations where we will apply the knowledge. We are motivated by internal pressure, not external.

Each activity in this handbook is linked to one or more of these learning characteristics. Keeping these characteristics in mind makes training more meaningful, effective and efficient.



# GETTING STARTED:

## Motivation & Beginning the Day

**C**reating connection among co-workers is a key to mine safety training that we often ignore.

Class members are a critical element of active training. And as a trainer, part of your job is to develop a sense of camaraderie among the trainees in your training session.

From experience you know that every training has its own group vibe. Some groups are fun and lively while others are flat and quiet. You can influence group dynamics and energize your trainees. The sense of camaraderie and working together that happens at the work site can be encouraged in your safety training room and lead to a stronger safety culture at your site.

Start by having the miners in your training introduce themselves to one another. This is a pivotal aspect of active training. It's simple – yet very effective.

When you have people introduce themselves, you're acknowledging the important role they will play in the training. You're also communicating that active training is about training people, not covering material.

In any group, but especially those with more than 30 participants who don't know each other, use name tags. The more you use people's names the more involved and acknowledged they feel. Name tags also help the trainees get to know one another.






In this section, you will find training activities to make connections and build trust in creative ways.



1

# 1.1 CLASSROOM SETUP

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-  **Activity description** – Do this activity before training begins. The setup of the room can impact interaction significantly.
-  **When to do this activity** – Before training.
-  **Objectives** – To encourage interaction, make training more interesting and enjoyable.
-  **Adult training characteristics addressed** – Experience and motivation
-  **In-class time** – 5 minutes

## Steps before class

- ✎ We recommend using a circle or U-shape for active training. This set-up allows the trainee to see everyone else in the training and creates an environment that includes everyone. In a circle or U-shaped setup you're less likely to have people drifting off, hidden in the back of the room. This also takes the focus off of you and puts it on everyone in the room – reminding trainees that they are learning safety for the sake of each other.
- ✎ If possible, provide comfortable chairs for the training.

## Steps during class

- ✎ Allow the group to casually interact. Encourage discussion so trainees can share their background and experiences. Enjoy the conversation and discussions you see happening amongst your trainees.
- ✎ Listen and learn. What you hear may help you connect with individual trainees later in the training process.
- ✎ **Remember** – It's easier to care about the safety of people we know than people we don't know. Giving trainees time to interact with one another can create motivation for learning and for transfer of safety principles to the worksite.

## Evaluation

You will know this activity is successful when trainees talk among themselves during the training session. This adds to and does not take away from the training experience.

# 1.2 DEVELOP TRAINING GUIDELINES

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**Activity description** – Start the day by letting the trainees know right away they'll be participating in mine safety training in a new way. Ask them to come up with their own guidelines for the training.



**When to use this activity** – Open your training session with this activity. This sets the tone and lets the trainees know that you expect them to participate and contribute throughout the training, not just sit passively and listen to you lecture.



**Objectives** – To create a feeling of involvement in the training. To encourage group participation – trainees are more likely to follow their own recommendations for group interactions. To motivate trainees to take responsibility for their own training experience – just as when they are in the workplace they have to take responsibility for their own safety and those around them.



**Adult training characteristics addressed** – Experience, collaboration and motivation



**In-class time** – 10 minutes



**Materials needed** – White board or poster paper, markers and a timer

## Steps before class

↘ If using PowerPoint, add this text to your slide:

### **Develop Training Guidelines**

Group decides on parameters for interaction

## Steps in class

↘ Introduce yourself, then explain that today's training will be "active training" – which is far different from passive presentations where they just sit and listen. Tell the trainees that you plan to encourage them to solve problems, explain procedures and share their experience with others. The first step in this new approach is to develop guidelines for interacting as a group.

- ✎ Ask the group to suggest some basic guidelines for interacting during the training process.
- ✎ These are parameters that everyone agrees upon about how to communicate and interact during the training. The guidelines the group develops together – basic courtesies like turn off cell phones, don't interrupt others and expect participation from everyone – will likely be the same as you would have chosen. But now you have “buy in” – consensus on how the group wants to function.
- ✎ Write the guidelines suggested by the trainees on a poster paper or on a whiteboard so everyone can see them.
- ✎ If no one mentions active participation you could prompt them by saying something like “Keep in mind that this is an active training and it works best when everyone is involved. Should we add that?” Call on people who have not yet contributed.
- ✎ If there are other guidelines that you'd like to include, ask the group “What about...” Then you can add new items with their agreement.

## Suggestions







- ✎ Here are some suggested guidelines:
- ✎ Respect everyone. Every question and opinion is valued.
- ✎ Do not interrupt when someone is speaking.
- ✎ Turn off cell phones. Use them only during breaks. No texting please.
- ✎ Participate. If you usually talk a lot in groups, hold back and give others a chance to jump in. If you usually don't talk much in groups, make an effort to jump in and contribute.

## Evaluation

You will know this activity is successful when trainees suggest all the guidelines for you. It is moderately successful when you need to prompt them with your ideas.

# 1.3 ICEBREAKER INTERVIEW

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-  **Activity description** – The Icebreaker Interview helps trainees get to know each other and sets the tone for the day of active training.
-  **When to use this activity** – At the beginning of the day, after setting group guidelines or after lunch – to get trainees out of their seats and talking to each other.
-  **Objectives** – To create stronger work relationships, which translate into a stronger safety culture on site. When trainees have a chance to get to know each other – to learn each other's names and a little more about each other – safety training comes alive and is more meaningful.
-  **Adult training characteristics addressed** – Experience, collaboration and motivation
-  **In-class time** – 20 minutes
-  **Materials needed** – 3x5 cards, pens, timer

## Steps before class

- If using PowerPoint, add this text to your slide:

### **Icebreaker Interview**

Getting to know each other helps create a stronger safety culture

## Steps during class

- Have the trainees number off to form groups of three.
- Give index cards and pens to everyone.
- After groups have formed, describe the activity, saying “Now we’re going to take some time to do mini-interviews with each other. In your group, decide who will be interviewed first, who will do the interview, and who will observe. After 2 minutes, you’ll switch. Listen for the bell.
- Set the timer for 2 minutes while groups conduct mini-interviews – including name, background, goals and other information.
- Do two more rounds of mini-interviews.

- ✎ Depending on the size of the group, you can ask each trainee to introduce someone else to the whole group. If the group is too large, ask individuals to share something interesting they learned about their co-worker.

## Evaluation

You will know this activity is successful when trainees have fun with it. It is successful when trainees who didn't know each other before the training get to know each other and refer to each other by name throughout the day.

# 1.4 SPARK THE CONVERSATION

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**Activity description** – Facilitating a discussion is one of the most powerful and important skills you can use when training adults. Adult learners like to share their experiences and take responsibility for their own learning. Lively and informed discussions help them remember details of the topic – especially when they hear from a variety of voices in the group.



**When to use this activity** – In some trainings, you may have a lively, talkative group where everyone wants to chime in about every topic. That’s when your facilitation skills can help you guide the discussion. Other times you may have a very quiet bunch. That’s when forming small groups or teaming up in pairs can be helpful – especially for those trainees who don’t want to talk in the larger group.



**Objectives** – To give you an idea of what your trainees do and do not understand. To keep trainees engaged and actively participating by asking questions that touch on important points of the safety topic.



**Adult training characteristics addressed** – Experience, collaboration, problem-solving and motivation



**In class time** – 10-15 minutes. (For talkative groups, you might want to set a timer so you can keep on schedule.)

## Steps before class

Review these useful phrases and questions:

### 👉 **Questions and comments to keep the conversation going:**

- Interesting. What do the rest of you think about what was just said? Do you agree?
- Has anyone else experienced something similar?
- Who here has experience with this subject?
- Say more about that...

### ‣ Guiding questions include:

- What surprised you about that?
- What did you learn that you didn't know before?
- What was confusing to you?
- What would you like to know more about?
- How would you explain that to someone new to the job?

## In class

- When facilitating discussions, ask questions that are open-ended – for example, “What do you know about working in high wall areas?” That is more engaging than a yes or no question like “Do you work in a high wall area?”
- Encourage conversation. As a group gets to talking, participants are more likely to feel a sense of camaraderie and pride in their work. This contributes to awareness and safety on site.
- You are an excellent facilitator when a discussion, debate or conversation sparks throughout the room – not when you simply ask a question, a trainee answers and you move on to the next question.
- **Remember** – Interactive discussion is one of the most effective ways to “cover the material” and make a lasting impact. In facilitating discussion, you are showing trainees you appreciate their knowledge, expertise and experience.


## Evaluation


You will know this activity is successful when trainees engage in a discussion in the group, rather than just sitting quietly or speaking to you only when you ask a direct question. This activity is very successful when trainees continue a natural conversation about safety throughout the day.




# 1.5 WANTED POSTER


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 **Activity description** – Working in pairs, trainees interview one another and develop an old-fashioned “Wanted Poster” to introduce each person to the group. This is a fun – and funny – alternative to typical get-to-know-you exercises.

 **When to use this activity** – This is a novel way to do group introductions at the start of any training. This also works well for groups where trainees already know each other well – like the annual refresher.

 **Objectives** – To build connections and camaraderie. To engage the group and set the stage for interactive team-building and problem-solving activities yet to come.

 **Adult training characteristics addressed** – Experience, collaboration and motivation

 **In-class time** – 30 minutes (depends on size of group)

## Steps before class

- ✎ Print out blank Wanted Posters. Provide pens or markers.
- ✎ If using PowerPoint, add this text:

### **Wanted Poster Introductions**

## In class

- ✎ Tell the group to get ready to have some fun. The plan is to introduce one another by using an outlaw theme and creating Wanted Posters. They’ll work in pairs to interview each other, create the Wanted Posters, then use them to introduce the trainee to the whole group.
- ✎ Ask each trainee to pair up with someone in the room – ideally with someone they already know.
- ✎ Encourage the group to be creative, silly, G-rated – and most of all – kind. Remind them to avoid insensitive answers that could make others uncomfortable.
- ✎ Give the trainees 2 minutes to do the first interview and fill out the Wanted Poster. Set the timer. When it rings, it’s time to interview the other person and complete the second poster. Again set the timer for 2 minutes.

- Now bring the group back together and have the trainees introduce one another with details from the Wanted Posters.

## Evaluation

At a minimum this activity gets trainees to share information with one another. At a maximum, the whole group is engaged and energized.

# WANTED

Trainee's name:

---

AKA – the Alias:

---

Reward:

---

Wanted by:

---

Wanted for:

---

Known hangout  
(what part of the mine?):

---

Distinguishing features:

---

Specialized skills:

---

Known to say:






---

Favorite safety slogan:

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# 1.6 TRAINING TEAMS

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- 
**Activity description** – Form groups at the start of the training so people can get to know one another, then come back together several times throughout the day.
- 
**When to use this activity** – This is a good way to get people engaged right at the beginning of the day. Have trainees gather in their Training Teams when you do small group activities throughout the day.
- 
**Objectives** – To build camaraderie. To get trainees from different departments to share experiences.
- 
**Adult training characteristics addressed** – Experience, collaboration and motivation.
- 
**In-class time** – 20 minutes





## Steps before class

-  If using PowerPoint, add this text:

### **Training Teams**

Introduce yourself and get to know others

## In class

-  Tell everyone from the same department to gather together at a designated spot around the room. For example, everyone from traffic control goes to one corner and everyone from the front office to another. If there are departments with only one or two trainees, combine them.
-  Now have these homogenous groups number off – 1, 2, 3, 4 – to form four new groups. Assign each numbered group a specific corner of the room.
-  Invite trainees to introduce themselves, say where they work and what they do. Then encourage them to discover one thing that they all have in common. Allow 4 minutes. Set the timer.
-  Ask someone from each group to share with everyone what the trainees discovered they all have in common. Give each group 1 minute. (The responses can be as varied as they all had breakfast or drove to this training session, to all having children, liking pizza or working in the mining industry.)

- Tell the trainees to return to their original seats and remind them that they will rejoin this training crew for other activities throughout the day.

## Evaluation

This activity is successful when trainees enjoy getting to know new co-workers. It is especially successful when the groups are creative in discovering what they have in common.

# 1.7 PARKING LOT

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**Activity description** – This activity allows the trainees to bring up off-topic issues and “park” them for later review.



**When to use this activity** – Introduce the Parking Lot at the beginning of the day, and use it whenever you want to stay on topic while reminding yourself and others that you will address the unrelated questions or concerns later in the day.



**Objectives** – To encourage questions on any topic at any time. To acknowledge the input from trainees and assure that their issues will be addressed.



**Adult training characteristics addressed** – Experience, problem solving and motivation



**In class time** – 1-2 minutes



**Materials needed** - White board or flip chart and marker

## In class


- The Parking Lot can be used at any time during the course of the training.
- Early in the training session, let trainees know they are welcome to ask questions and make comments at any time – even if they are unrelated to the topic at hand.
- The white board or flip chart becomes the parking lot of unaddressed question or comments. This is the place to write the topic down so everyone remembers that it is “parked” there and will be revisited later.
- For example, if you are teaching first aid and someone asks a question about fall protection, write the question about fall protection in the parking lot to be answered later when you teach that topic.
- This also works well if one person is dominating the conversation. You can say “Obviously this topic could use more discussion – but for now let’s put it in the parking lot and come back to it later.”


## Evaluation


You’ll know this activity is successful if there are several topics parked for later discussion. This shows that trainees are engaged and interested. If you come back and address all questions and comments by the end of the day, this has been a success.

# 1.8 WORD WALL

---

 **Activity description** – When trainees hear new words or mining-specific terms, they write them down on cards and post them to a word wall – where they remain throughout the day. When the word is posted, someone volunteers to define it.

 **When to use this activity** – You can start a word wall at the beginning of your training and add to it throughout the day – or even create several word walls on different topics. Use this activity when you're introducing new pieces of equipment, work areas or mining-specific language. This also is good for new miners. (Also see the Mining Acronym Hunt)

 **Objectives** – To introduce industry-specific terms to new miners. To encourage trainees to listen. To assist visual learners and trainees who are not proficient in English.

 **Characteristics of adult training** – Experience and motivation

 **In-class time** – 1 minute for each word added

## Steps before class

- Purchase large notecards. Provide tape or push pins so trainees can post these cards on the word wall.
- If using PowerPoint, add this text:

### **Word Wall**

Build your mining vocabulary

## In class

- Tell trainees that creating a word wall will help expand their mining vocabulary. The word wall is a collection of words displayed for everyone to see throughout the day. This can include new words or industry-specific terms. These words or phrases can be posted randomly or organized around a specific topic such as fire safety or fall protection.
- Hand out a few notecards to each trainee.
- Whenever anyone hears a new term – such as berm or lockout tagout – he or she writes it on a card and posts it on the word wall. This can be a whiteboard or multiple pages from a flip chart.

- Once a word is posted, pause and ask for a volunteer to define this new term.
- Anyone can add to the word wall throughout the day, as they hear words or concepts they think are important.

## Examples

- Fall protection – tie-off, harness, working at heights

## Evaluation

The content on the word wall is a good indication of how well trainees listened for new words or mining-specific terminology and posted them. If volunteers were eager to define the words posted, that suggests they were engaged and wanted to share their knowledge with others.



# 1.9 MINING ACRONYM HUNT



**Activity description** – The mining industry has a lot of acronyms and this activity can help new miners understand industry and site specific lingo.



**When to use this activity** – You can start the acronym hunt at the beginning of your training and add to it throughout the day. This also is a great activity for new miners and English language learners. (Also see the Word Wall)



**Objectives** – To have trainees find and define as many acronyms as they can. To help new miners learn the language of mining.



**Adult training characteristics addressed** – Experience, collaboration and motivation



**In-class time** – 5 minutes



**Materials needed** – A white board or flip chart and marker

## In class

- Use this activity spontaneously whenever an acronym is mentioned.
- Or, at the beginning of the day, tell trainees that every time an acronym is mentioned throughout the day, someone will get up and write it on the white board or flip chart to create a “word wall.”
- You also can keep score so the trainee who collects the most acronyms by the end of the day wins a prize.
- In new miner training, you also could give extra points if a trainee catches you using an acronym without explaining it.

## Evaluation

The word wall will show you how closely the trainees listened for acronyms and identified what the letters stand for.



# GROUP DYNAMICS:

## Engaging Trainees

One of the hardest things for a trainer to do is step aside and encourage the trainees contribute. This is a powerful way to engage adults and have them actively participate in the training process.

You can expect trainees to draw from their own personal insights and experience to collaborate and problem solve. This connects them to the safety topic and motivates them to pay closer attention.

Managing group dynamics can be a challenge for those who are used to training by lecturing. That's why we've gathered a variety of activities that you can easily incorporate into your training program.






These activities give you feedback about how well the trainees are understanding and retaining the material discussed.



2

# 2.1 PLAIN LANGUAGE

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-  **Activity description** – This activity encourages trainees to think about what mine safety regulations mean in plain language.
-  **When to use this activity** – Use this activity when you are required to introduce trainees to official regulations – like in the CFR 30.
-  **Objectives** – To help the group connect to the topic, get people moving and encourage them to clearly state what a regulation really means.
-  **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation
-  **In-class time:** 10-15 minutes

## Steps before class

- ✎ If using PowerPoint, add this text to your slide:

### **Plain Language**

What does this really mean?

- ✎ Choose a few important regulations from the CFR that you are required to teach in your training. Type them out on separate pieces of paper, including the reference numbers. Leave space for trainees to write under the regulation.
- ✎ Come up with your own plain language version of the regulations and create a PowerPoint slide.

## In class

- ✎ Divide participants into groups of three.
- ✎ Hand out one regulation per group. There may be some overlap where two groups get the same regulation.
- ✎ Lead trainees in a group discussion using your plain language example.
- ✎ Have the trainees write their own plain language version of the regulation in the space provided. Allow 5 minutes for this.

- Ask the small groups to share their plain language regulation with the whole group. Allow 5 minutes for this.
- Present your plain language version of each regulation on your PowerPoint, noticing and commenting on differences between the interpretations of official language.

## Examples:

- 77.400(a) Mechanical Equipment Guards – Gears; sprockets; chains; drive, head, tail, and take-up pulleys; flywheels; couplings; shafts; saw blades; fan inlets; and similar exposed moving machine parts which may be contacted by persons, and which may cause injury to persons shall be guarded.
- 77.807-2 77.807-2 Booms and masts; minimum distance from high-voltage lines – The booms and masts of equipment operated on the surface of any coal mine shall not be operated within 10 feet of an energized overhead power line. Where the voltage of overhead power lines is 69,000 volts, or more, the minimum distance from the boom or mast shall be as follows:

Nominal power line voltage (in 1,000 volts)	Minimum distance (feet)
69 to 114	12
115 to 229	15
230 to 344	20
345 to 499	25
500 or more	35






- 56.14100 (d) – Safety defects; examination, correction and records – Defects on self-propelled mobile equipment affecting safety, which are not corrected immediately, shall be reported to and recorded by the mine operator. The records shall be kept at the mine or nearest mine office from the date the defects are recorded, until the defects are corrected. Such records shall be made available for inspection by an authorized representative of the secretary.

## Evaluation

This activity is effective when trainees have fun coming up with plain language descriptions of safety regulations. When the plain language versions are accurate, this activity was successful.

## 2.2 FLASHCARDS

---

-  **Activity description** – Trainees work in teams to create flash cards with definitions of mine-specific acronyms, slang and terminology. They use the cards to share their words with the group during this activity and throughout the day. Knowing the language of the industry contributes to safety.
-  **When to use this activity** – This is especially good for new miner training to help workers understand and memorize mining-specific terms and lingo. Use this early in the day so trainees will have the flashcards for reference all day long.
-  **Objectives** – To encourage trainees to collaborate. To engage them in active learning by having them create their own definitions.
-  **Adult training characteristics addressed** – Experience, collaboration, problem-solving and motivation
-  **In-class time** – 30 minutes

### Steps before class

- ✎ Purchase 5x7 notecards
- ✎ If using PowerPoint, add this text to your slide:

#### **Flashcards**

Mine-specific words and what they mean

- ✎ Make a list of mining-specific words, abbreviations and slang that are commonly used. Write one term on each card.

### In class

- ✎ Tell the trainees that they are going to work together to explore the vocabulary of mining.
- ✎ Have trainees pair up, preferably with someone they don't know (or don't know very well).
- ✎ Give each person a flashcard. Ask them to work together to write out a definition for each of their words. Use a timer and give them 6 minutes for this.

- When the timer rings, ask the trainees to introduce their word and its definition to the entire group. Ask if this definition is clear and accurate. If not, have trainees offer suggestions. Then the trainee writes the final definition on the back of the flashcard.
- As the training proceeds, whenever a mine-specific term is mentioned, ask for the person who has that term on a flashcard to review its definition for the group.

## Examples






- Emergency procedures and miners' rights

## Evaluation


This activity was successful if trainees collaborated to define the mining terminology. Were their definitions accurate? Did the group continue to use the cards throughout the day to reinforce understanding of these new terms?

## 2.3 MUDDIEST POINT

---


- 
**Activity description** – This is a quick checking activity that helps you make sure that what you’ve just explained is clear to everyone.
- 
**When to use this activity** – This works well in the middle or at the end of a lecture, after completing a section on a complex topic or at the end of a video.
- 
**Objectives** – To give trainees the opportunity to ask questions about what may be unclear to them. To assess whether they grasp the material that was just covered.
- 
**Adult training characteristics addressed** – Experience and motivation
- 
**In-class time** – 10-15 minutes

### Steps before class





-  If using PowerPoint, add this text to the last slide in each section of your presentation:

#### **Muddiest Point**

What was unclear about this topic?

-  NOTE: You also may have added the Fish Bowl activity to the last slide. Both are excellent ways to get feedback so you can address points that trainees feel are unclear.

### In class

-  When conducting a training you’ve done many times before, it is easy to forget that the material may be new and difficult to comprehend for some folks in the room. Perhaps you have trainees who are new miners, new to your site or English language learners.
-  After a lecture or at break in the presentation, ask the trainees: “What was the muddiest point in this part of the presentation?” or “What about this topic is unclear to you?”
-  Clarify the point or points that trainees found to be muddy or unclear.
-  Ask the class to re-state key points in their own words. That way you will reinforce important information for everyone in the training.








## Evaluation

This activity was successful when trainees feel comfortable enough to speak up about what was unclear. The feedback that trainees provide during this activity will underscore what parts of your presentation are unclear and need to be expanded for future sessions.

## 2.4 FEEDBACK BALL TOSS

---

- 
**Activity description** – This activity demonstrates the power of various kinds of feedback – from none to negative, from encouraging to very specific. It’s also fun and can involve the whole group.
  
- 
**When to use this activity** – This is a great activity to use in the middle of the training or between two sections of training to liven things up.
  
- 
**Objectives** – To demonstrate the powerful effects of different types of feedback and the importance of listening for verbal cues.
  
- 
**Adult training characteristics addressed** – Collaboration and motivation
  
- 
**In-class time:** 15 minutes

### Steps before class

This activity can be done with the whole group – or with several smaller groups at the same time. Depending on which you choose, you’ll need either one set of materials or multiple sets.

✎ For each group, you will need:

- 1 blindfold
- 1 basket
- 3 ping pong balls, tennis balls or crumpled pieces of paper
- Optional – award for the volunteer

✎ If you’re using PowerPoint, add this text to your slide:

#### **Feedback Ball Toss**

How feedback influences behavior

✎ On the next slide, list these instructions for Feedback Ball Toss:

- **Round 1** – Stay silent. No cues given.
- **Round 2** – Give only negative feedback – No way... Horrible shot... Missed it by a mile...

- **Round 3** – Provide only positive feedback – Great job...Nice throw... Good form... Way to go...
- **Round 4** – Be specific. Give useful feedback that will help the volunteer make the basket – Move left...Throw it farther... That almost went in... It's straight ahead... Right in front of you...

## In class

- ✎ Ask for a volunteer or volunteers. Explain that he or she will be blindfolded while attempting to accomplish a challenge. (Perhaps offer a small award as an incentive for volunteering and completing the activity.)
- ✎ Ask the volunteer to leave the room for two minutes. If doing this in small groups, several people will leave together. If doing this as a single large group, ask someone else to go with the volunteer for company.
- ✎ Explain to the rest of the group that each volunteer will be blindfolded. Someone will quietly place a basket in front of the volunteer, who is then given three balls. The volunteer will attempt to throw the balls into the basket as the group gives specific kinds of feedback.
- ✎ Now bring the volunteer(s) back into the room and put on the blindfold.
- ✎ Only after the blindfold is in place, show the PowerPoint slide instructions that you prepared for each round of this activity:
  - **Round 1** – Stay silent
  - **Round 2** – Negative feedback only
  - **Round 3** – Positive feedback only
  - **Round 4** – Specific helpful feedback
- ✎ Ask the volunteer(s) to throw the balls for Round 1. Then give them the balls again to complete the next three rounds.
- ✎ Thank the volunteer(s) and remove the blindfold. Then ask about the experience. How did they feel going into this process? What changed for them as they received four different kinds of feedback?
- ✎ Now have the group discuss this activity. What did the trainees observe? What did they learn? What does this demonstrate about the feedback we give co-workers?
- ✎ Also consider these questions:
  - When is feedback useful?

- What type of feedback is most valuable?
- How does the feedback that we deliver assist others in achieving success in an activity – particularly one associated with safety?

## Evaluation

This activity should encourage participation and demonstrate the value of specific guided feedback. Input from the volunteer gives insights into the way people feel when directed by others. The group discussion indicates whether or not this exercise had an impact on the perception of effective feedback.

## 2.5 WHAT DID HE SAY?

---



**Activity description** – Many times trainees do not hear or listen to what their co-workers are saying in the training. They are focused only on listening to you. After one trainee has volunteered an answer to your question, ask someone else to summarize the first person's response. Asking trainees to reiterate what a co-worker said promotes active listening and collaboration in learning. Most trainees will listen more closely after the first time you do this activity.



**When to use this activity** – During a lecture, after you pause to ask a question and someone answers you.



**Objectives** – To promote active listening, to make sure everyone hears what has been said, to give responsibility for learning to the trainees. To illustrate an important safety concept – we need to pay attention, be aware and listen to everyone on site – not just tune out and wait for instructions or the final word from the supervisor.



**Adult training characteristics addressed** – Collaboration, problem-solving and motivation.



**In-class time** – 2-5 minutes

### Steps before class

- If you are using PowerPoint, add this to your slide:

#### **What Did He Say?**

Actively listen to your fellow trainees

### In class

- If you are lecturing, pause to ask a question about the topic you just covered. For example – What are three situations where we use barricading?
- Call on one trainee to answer the question.
- Then ask someone in the group to summarize the answer that was just given.
- Clarify or expand as needed.






## Suggestion

Sometimes when doing this activity, the person who is supposed to summarize will just give their own answer. This is an opportunity for you to say something like “The instructions were to summarize what the first person said – not to give your own answer. Listening is a critical skill in our industry. What if this had been a safety situation and you didn’t listen to or follow the instructions? You could be seriously injured or worse right now.”


## Evaluation

This activity is successful when the second person clearly summarizes the first person’s answer to your question. This demonstrates and reinforces active listening skills.





## 2.6 FISH BOWL OF QUESTIONS

- 
**Activity description** – This fish bowl tool is an easy way for trainees to get answers to questions without having to ask the trainer in front of the whole class. This helps people who may feel embarrassed to ask questions – because they are reticent by nature, or they don't want everyone to know what they don't know, or because they don't speak English well.
- 
**Why use this activity** – This is a great tool for new miner trainings as well as large groups or those times when you have experienced miners and new miners in the same session.
- 
**Objectives** – To encourage trainees to ask questions even if they are reluctant to speak out in class. To clarify topics that were not clearly understood.
- 
**Adult training characteristics addressed** – Collaboration and problem-centered learning
- 
**In-class time** – 10-15 minutes

### Steps before class

-  Find an inexpensive fish bowl, or any open glass or plastic container large enough to hold index cards. (Choose something you don't mind losing or breaking.) Bring this to class, along with a generous supply of blank index cards and pens.

### Steps in class

-  At the start of the training, give each participant a few index cards – or put cards and pens at each person's place.
-  Explain that these cards are an easy way to ask questions throughout the day. Just write the question on the card and drop it in the fish bowl. Encourage the trainees to ask for clarification about something they didn't understand or ask other questions, such as about how to implement what was presented at the work site.
-  Check the fish bowl several times during the day. You may want to remind yourself to do this in your notes – or check the bowl at every break.
-  When there are questions in the fish bowl, select a card, read the question out loud.

- Ask the trainees if anyone knows the answer. Let someone in the class provide the answer to the question. Then you can clarify or provide more detailed information as needed. Allowing trainees to answer each other's questions can make the class more engaging and interesting for everyone. People tire of hearing the same voice all day long.
- If no one in the group can answer the question correctly, give the answer yourself. Also be prepared to say, "This is a good question. Since none of us has the answer, I'll have to do some research and get back to you on this one."
- Check back with the group to see if there are any follow-up questions or further clarification needed on the topic.

## Suggestions

Remember that these questions are put in the fish bowl because the trainee did not feel comfortable asking it in front of others. You need to assure that the person submitting the question remains anonymous. Even if you know who wrote the question, do not look at the trainee nor speak directly to him or her. Also be aware that this activity can get interesting if you have jokers in the class. Take advantage of the opportunity to share the fun, then segue back to a more serious topic.

## Evaluation

You will know this activity is successful when trainees use the fish bowl. It is extremely successful when the questions are challenging for you to answer!



## 2.7 DEBATE

---



**Activity description** – The group divides into two teams and prepares to debate different points of view about a mine safety incident.



**When to use this activity** – This activity can be incorporated into a variety of lessons to illustrate how complicated safety choices can be. It works best when there are opposing choices or options that could be considered. This demonstrates the importance of collaborating to understand all aspects of a situation before taking action.



**Objectives** – To create a debate about how an incident could have been handled differently and to encourage critical thinking and group collaboration.



**Adult training characteristics addressed** – Experience, collaboration and problem solving



**In-class time** – 10-15 minutes

### Steps before class

✎ If you are using PowerPoint, add this to your presentation:

#### Debate

### In class

- ✎ Divide the group into two sections that will each represent one position on an incident. You can use a recent fatalgram as the focus of this activity.
- ✎ Ask for two volunteers to serve as debate referees.
- ✎ Give the groups 2-3 minutes to develop the key points of their case.
- ✎ Then each side will have 2 minutes to present their case.
- ✎ The referees decide which side made the strongest case.
- ✎ Encourage the group to discuss the key points made by both sides and reinforce the merits of exploring options and listening to all sides before making an informed decision about complex issues.

## Evaluation

The best indication of success will be the thoroughness of each team's presentation – and the level of participation in the group discussion. Did the presenters focus on all the key points – or did you need to point out other options that they overlooked?

# PROBLEM-BASED LEARNING:

## Make It Real

**P**roblem-based learning is a powerful training tool. The goal is to encourage people to think strategically and creatively about solving a problem or reaching a goal, drawing from their own life and work experiences.

In problem-based learning, trainees collaborate, explore options, share knowledge and come up with a feasible solution.

For example, examining and discussing a recent incident is more effective than asking trainees to memorize the steps of a safety procedure.






The activities in this section are examples of problem-based learning. These tools will get your trainees thinking about safety processes and solutions.



3

# 3.1 FATALGRAM REVIEW

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-  **Activity description** – Fatalgrams powerfully underscore the need for safety standards.
-  **When to use this activity** – Use this at any point in your safety training.
-  **Objectives** – To stimulate trainees to think critically and encourage each person to contribute to shared knowledge about safety.
-  **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation
-  **In-class time** – 25-30 minutes

## Steps before class

- Prepare a variety of fatalgrams to distribute to small groups. Tape a paper over the Best Practice section on each page so that only the accident description and photo are showing.
- If you are using PowerPoint, add this text to your slide:

### **Fatalgram Impact**

Discuss factors that contributed to these accidents.

**Note:** in some Native American cultures, it is taboo to discuss death. Be aware of this, and ask someone if you are not sure if this activity would be appropriate.

## In class

- Tell trainees that too many miners still lose their lives in preventable accidents. Between calendar years 2000 and 2009, more than 600 miners lost their lives, according to Mine Safety and Health Administration. Many were single and double fatality accidents.
- Now break into groups of three or four. In a small group, this activity can be done in pairs. Give each group a fatalgram and ask them to discuss what could have happened – and how the accident might have been prevented. Based on their experience and knowledge, what would these trainees recommend?
- Set your timer for 10 minutes and walk around the room to monitor the discussions and offer suggestions as needed.

- After 10 minutes, ask them to uncover the Best Practices list and compare those options to their own suggestions. Encourage each person to contribute to the shared knowledge. Also remind them to consider additional factors that might not be evident in the fatalgram – such as lack of sleep, worries at home or substance abuse. How would they address these concerns?
- Bring the whole group back together. Have someone from each small group describe their accident and what actions they would recommend to prevent a similar incident in the future. Encourage other groups to challenge them with alternative solutions. Let the conversation flow!
- Recap key points of the discussion.

## Suggestion


Check out the technology available in your classroom and on your laptop. You may be able to use simulator platforms that can turn fatalgrams into live-action 3-D environments that better convey the story and flow of events. Users can watch the unfolding story as passive observers – or dive into the story to become active participants. Trainees can change the outcome of the story by using best practices to avoid the accident. Learn more at <http://miningsh.arizona.edu/training-software>.


## Evaluation


This activity is successful when trainees actively participate in the small group sessions and when the entire group contributes additional ideas and solutions.

## 3.2 SMALL GROUP DISCUSSION

---

 **Activity description** – Small-group discussions allow trainees to explore and clarify ideas as they help each other understand the topic.

 **When to use this activity** – Use this when you would usually lecture on a topic to engage trainees in active discussion instead of passive listening.

 **Objectives** – To encourage trainees to draw upon their experience and share insights as they discuss the safety training topic or work together to solve problems.

 **Adult training characteristics addressed** – Experience, collaboration, problem-solving and motivation

 **In-class time:** 10-20 minutes

### Steps before class

- ✎ Identify several topics you want trainees to discuss or problems to solve in small group discussions. Write them down on individual 3x5 cards or pieces of paper so you can hand each group its own topic.
- ✎ If using PowerPoint, add this information where you want to stop lecturing and actively engage trainees:

#### **Explore and Clarify**

Small group discussion

### In class

- ✎ Ask trainees to split into groups of three or four.
- ✎ Give each group a topic to discuss or problem to solve. Set a timer for 5 minutes.
- ✎ Bring everyone back together.
- ✎ Invite one person from each small group to summarize what was covered in the discussion. Allow 2 minutes for each report.

- Expand on any of the topics if any important points were not addressed.
- Open the discussion to the entire group. Is there anything anyone would like to add to the points discussed? What insights would you like to share?

## Examples






- Discuss three things you think are important in the Miners' Rights Handbook.
- Explain the emergency procedures at your mine site.

## Evaluation

This activity is a major success if the small groups addressed all the major points you would have covered in a lecture. Not only was the topic explored or problem solved, but trainees benefited from collaborating and sharing their insights with the larger group.

## 3.3 WRITE AN INCIDENT REPORT

---

-  **Activity description** – All trainees need to be familiar with incident reports and work orders even if they are not required to write them or do so infrequently. This activity gives trainees practice in asking questions to get the information needed to complete reports.
-  **When to use this activity** – This works well for new miner training as well as for annual refresher.
-  **Objectives** – To help trainees become familiar with mining-specific workplace language. To build understanding of the bigger picture of reporting incidents.
-  **Adult training characteristics addressed** – Experience, collaboration problem-solving and motivation
-  **In-class time** – 20 minutes

### Steps before class

- ✎ If using PowerPoint, add this text:

#### **Write An Incident Report**

Ask the right questions

- ✎ Run copies of blank incident reports and other forms to distribute in class.
- ✎ Collect several recent incidents that have happened at your mine for the groups to use as a starting point.

### In class

- ✎ Before breaking into small groups of three, ask if anyone has experience filling out incident report. Encourage each of those individuals to join a group of people who don't have experience with incident reports.
- ✎ Give each group an incident description and a form to complete. Ideally, each group would have a different incident.








- ✎ Set the timer for 10 minutes.
- ✎ Ask them to either use an incident summary you provide. For example, Joe was hurt. What would you ask him about the incident?
  - Date, time and location
  - Severity of the injury
  - What was he doing when he was hurt?
  - Were there any witnesses?
  - Did you barricade the area?
  - Did you protect the evidence?
  - Did you notify the proper people?
  - Were you trained?
- ✎ Were you asked to do something beyond your capabilities?
- ✎ After the forms are completed, ask a volunteer from each group to share with everyone what their form is and how they filled it out. Address any areas that are incomplete.

## Evaluation

The completed forms will indicate how well this activity worked. If they are not very complete, it is clear the trainees did not comprehend the scope of the task. If they are well done reports – lesson learned!

## 3.4 BEST & WORST PROCEDURES

---

-  **Activity description** – Role play the best and worst practices for a particular safety task.
-  **When to use this activity** – This is effective for new miner training as well as the annual refresher.
-  **Objectives** – To give everyone a chance to see the extremes of the best and worst mine safety actions that can be imagined. To engage trainees, build camaraderie and have fun.
-  **Adult training characteristics addressed** – Experience, collaboration and motivation
-  **In-class time:** 10-15 minutes

### Steps before class

- ✎ If using PowerPoint, add this text:

#### **Best and Worst Practices**

Role play the extremes of mine safety

- ✎ Identify three procedures you'd like to use in this activity. For example:
  - Communicating with a co-worker to solve a problem
  - Putting on an SCSR
  - Communicating with ground control

### In class






- ✎ Ask for six volunteers to role play the best and the worst practices for the three procedures you've selected.
- ✎ Two volunteers will partner on one procedure. One role plays the best way to do the procedure. The other person role plays the worst way to do the procedure.
- ✎ After all three procedures are demonstrated, ask the group for feedback on what they learned from this activity.

## Evaluation

The success of this activity depends greatly on the individuals who volunteer, their level of knowledge and enthusiasm for the role playing. If they make their point and have people both laughing and learning, this was a success.

## 3.5 FOLLOW A PROCESS

---

- 
**Activity description** – This activity allows trainees to work together to follow a step-by-step process.
- 
**When to use this activity** – This works well for new miner or experienced new miner trainings.
- 
**Objectives** – To allow trainees to collaborate to follow a specific process. To demonstrate the bigger picture of the mine site.
- 
**Adult training characteristics addressed** – Experience, collaboration and motivation
- 
**In-class time** – 10-15 minutes

### Steps before class

- ✎ Select a process you'd like to use in the training.
- ✎ Identify all the steps involved to follow the process to completion.
- ✎ If using PowerPoint, add this text:

#### **Follow a Process**

Pay attention to details

### In class

- ✎ Tell the group what process they will be detailing.
- ✎ Give an overview of the end result of following this process.
- ✎ Ask for a volunteer to begin recording the steps as they are taken.
- ✎ Encourage trainees to identify what main steps are needed and in what order.
- ✎ Check in with the group along the way to see if they agree the process is systematically moving along.
- ✎ Review the steps taken to complete the process.

### Examples

- ✎ Incident investigation or SCSR for underground

## Evaluation

This activity is successful when trainees participate fully. Did most members of the group contribute their ideas or answer questions? Or were there just a few vocal trainees? The more people who actively participate, the more successful this adult training activity is.



# DISCUSSION & FEEDBACK:

## Stay Connected to Safety

It's tough to stay energized and enthused throughout an all-day training. That's true not only for the trainees – but also for you the trainer.

These activities offer clever ways to connect with trainees and encourage them to participate, role play, answer questions, quiz one another and team up on solutions.



4

# 4.1 WHAT'S YOUR EXPERIENCE?

---



**Activity description** – This activity encourages trainees to think about their personal experiences, background and knowledge of mine safety and safety in general. Trainees are more likely to remember information that connects to their own life experience.



**When to use this activity** – Use this at the beginning of the day to help engage trainees and connect them to the importance of mine safety training.



**Objectives** – To stimulate interest, motivation and engagement. To allow trainees to get to know one another and build relationships with co-workers.



**Adult training characteristics addressed** – Experience and motivation



**In-class time** – 10-20 minutes

## Steps before class

↘ If using PowerPoint, add this text to your slide:

### **What is your experience?**

Think about what brought you to this moment.

## In class

- ↘ Introduce this activity by saying, “We are going to take a few minutes to reflect on why we are here and how we got here. This will remind us of the context of the work we do and the connection to this safety training session. You are welcome to write down your answers – or just think about them. Let’s reflect together on the following questions.”
- ↘ Be sure to ask this series of questions slowly and clearly – with pauses so people can think about or write their answers before you move on to the next question. Give them time process this information.
  - What brought you here? To this career and this specific job? Did someone help you get the job or tell you about it?
  - How did you get to this training? Did you drive? Who taught you to drive?



- Have you ever been involved in an accident? Who helped in this situation?
  - Can you identify reasons for being here – beyond “it’s required?” How can this training help you in your job?
  - What does safety mean to you? What questions do you have about safety in your workplace?
- ✎ Now invite people to share their thoughts with the group. Guide them by asking for specifics:
- Who would like to share their answers to any of these questions?
  - What people influenced your experiences and brought you here?
  - What benefits to you anticipate from this training?
  - What does safety mean to you?
- ✎ Thank them for participating in this activity and sharing their experiences. Reinforce what’s been discussed about the importance of learning and practicing safety in the workplace.

## Suggestions

This purpose of this activity is to engage your trainees and lay the foundation for their participation throughout the training. Keep these adult training principles in mind:






- ✎ Adults are more likely to pay attention when the topic relates to their personal experience.
- ✎ Stronger work relationships translate into a stronger safety culture.
- ✎ Connecting to “how we got here” helps the group see the bigger picture of the history of the industry – and that can translate into a feeling of gratitude and a greater awareness of the impact that safe practices can have on everyone.

## Evaluation

You will know this activity had an impact when trainees express gratitude about the people or circumstances that got them where they are today.

## 4.2 CREATE-A-QUIZ

---

-  **Activity description** – Trainees create their own quizzes to evaluate their understanding of a topic. This activity encourages collaboration and responsibility for learning.
-  **When to use this activity** – This is an especially good activity for the annual refresher but it can be used after any training topic.
-  **Objective** – To help trainees connect with the topic, to acknowledge trainee’s experience and to create motivation for listening.
-  **Adult training characteristics addressed** – Experience and collaboration
-  **In-class time** – 10-15 minutes

### Steps before class

- ↘ If using PowerPoint, add this text to your slide:

#### **Create-a-quiz**

### Steps in class

- ↘ Ask trainees to work in pairs to create a quiz with five questions about the topic they just reviewed. Ask people to pair with someone they do not know for this activity.
- ↘ Give the group six minutes to create their quizzes. Set your timer.
- ↘ Change up the pairing so that one person from each pair is now with someone else.
- ↘ Have each person quiz the other. Allow about 3 minutes. Set your timer.
- ↘ Then go over the quizzes with the whole group and discuss any important information that was not covered.

### Example






- ↘ Try this Create-a-Quiz activity following your session on first aid.

## Evaluation


This activity is most successful when trainees create quiz questions that are difficult to answer! It is moderately successful when the quiz questions are easy to answer, but cover a range of points you reviewed in your lecture.

## 4.3 PASS THE MARKER

---



- 
**Activity description** – This is a modified quiz activity for managing and encouraging discussion during the training session. This activity gives each person a chance to participate, keeps the class interested and paying attention, and gives immediate feedback and reinforcement.
- 
**When to use this activity** – At the end of a section – or at the end of the day, where you might normally go over a quiz with the group.
- 
**Objectives** – To include everyone in the class and create positive group dynamics.
- 
**Adult training characteristics addressed** – Experience and motivation
- 
**In class time** – 5-15 minutes

### Steps before class





-  If using PowerPoint, add this text at the end of the section or presentation:

#### **Pass the Marker**

Answer the question

-  Prepare the questions you want to ask the group based on the key points you plan to present. Or use a quiz you've already created.
-  Choose a marker or another small item such as a pen for the group to pass around.

### In class

-  When it's time for the modified quiz, give the marker to a trainee and ask a question.
-  Invite the trainee with the marker to answer the question, then pass the marker to someone else.
-  If the person answers incorrectly, they can still pass the marker. However, it will probably come around to them again.
-  At any time you can intercept the marker and give it to someone who has not yet answered a question.

## Example

Use quiz questions like this for Pass the Marker:






- ✎ Name one thing you can get from an MSDS that would assist in pollution prevention. Pass the marker to get three examples.
- ✎ What size of spill must be reported? All sizes? 5 gallons? 50 gallons? Or no spills must be reported if cleaned up properly.

## Evaluation

This activity can get everyone engaged and participating. That's one judge of success. If the questions are answered correctly, that's better yet.

## 4.4 PAIR SHARE

---

-  **Activity description** – This activity encourages trainees to take a minute and share their knowledge and insights, preferably with someone they do not know.
-  **When to use this activity** – Use this just about any time that you want to break up a lecture or video and get trainees to contribute to the topic at hand. Shy trainees benefit from this one-on-one connection because they might not be comfortable talking in front of the whole group.
-  **Objectives** – To focus attention and build camaraderie. To encourage trainees to learn from each other by sharing their experience and knowledge and solving problems together.
-  **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation
-  **In-class time** – 10-15 minutes

### Steps before class

- ✎ Introduce the Pair Share activity spontaneously whenever you see that the class is drooping.

### In class

- ✎ Pause and ask trainees to think about their personal experience or concerns about the current topic or issue.
- ✎ Then have each person turn to another trainee – preferably someone they do not know – and share their experience. Use a timer to keep it short. Usually 1 minute per person is plenty of time.
- ✎ Ask the whole group if there are a few ideas or responses that they'd like to share. You may want to set a limit of 5 or 6 minutes for this.

### Example

Use Pair Share after the section on escape and emergency evacuation or fire warning and firefighting. Tell the trainees to turn to the person next to them and explain fire warning signals and firefighting procedures.

## Evaluation

Listen carefully to the insights that the pairs share with the group. The content will indicate how much experience was shared and the level of critical thinking that went into their responses.

## 4.5 YOUR JUST REWARD

---



**Activity description** – Awards are a great way to encourage participation and motivate trainees.



**When to use this activity** – Use this anytime you play a game or in the middle of class as a brief break to re-engage trainees



**Objectives** – To encourage trainees to participate and to keep the training lively. To provide an incentive for those who volunteer.



**Adult training characteristics addressed** – Motivation



**In-class time:** 1 minute

### Steps before class

- ✎ Purchase a variety of goodies that you can use as prizes and rewards throughout the day. Awards can include ball caps, flashlights, mini toolkits, tote bags and hard-hat stickers. Also add snacks like energy bars, pretzels, cookies, crackers and candy bars.

### In class


- ✎ Whenever you need a volunteer for an activity, offer a reward. Say something like “Next I’d like someone to demonstrate how to put in hearing protection. Who will do this for a candy bar?”
- ✎ Present awards to the winners of the various games you play throughout the day.


### Evaluation


Notice whether offering prizes increases interest and participation.




## 4.6 ROLE PLAY

 **Activity description** – You can be really creative with role play in mine safety training. For example, one trainee can play the role of someone who refuses to follow safety regulations – while another tries to influence that behavior, then gives up and reports the incident to a supervisor. Some trainees enjoy taking on these roles while others prefer to watch.

 **When to use this activity** – Role play can be very quick. It's a great attention grabber that can be entertaining and engaging for everyone – while driving home important safety messages.

 **Objectives** – To give trainees the opportunity to interact, demonstrate safety procedures and discuss onsite safety. To encourage participation and build camaraderie.

 **Adult training characteristics addressed** – Experience, collaboration, problem-solving and motivation

 **In-class time** – 10-15 minutes

### Steps before class

✎ If using PowerPoint, add this text:

#### **Role Play**

Mine safety do's and don'ts

✎ Write out three or four scenes that will be acted out by trainees in the role play. You could also use incident reports and ask trainees to act out what happened. Identify what roles you want the trainees to play.

✎ Print these situations and roles out on small strips of paper to hand out to trainees

### In class

✎ Ask for volunteers to act out a role play. Offer rewards for participation.

✎ Give volunteers their scene and their role to play. Set timer for 2 minutes.

✎ Ask the whole group to comment and give suggestions on how they might have responded in this situation. Encourage them to draw on their own experiences.

✎ Repeat this process for the remaining role play teams.

## Example

### Hearing Protection


- **Role 1** – You are working in a very noisy area. Refuse to wear hearing protection. No matter what anyone says to you, continue to refuse to wear your hearing protection.
- **Role 2** – You also are in the noisy work area and notice that your co-worker is not wearing hearing protection. Encourage your co-worker to start wearing hearing protection. Take further action if this person still refuses to wear protection.
- In this role play, the first person refuses, and might even get angry. The second person might report this to the shift supervisor. This role play gives trainees a chance to practice and hear what they could say when confronting with someone not following safety procedures.


## Evaluation


This activity is successful when the volunteers have fun with playing the role. It is also successful when all the trainees participate by contributing their own experiences to the discussions.

## 4.7 MIND MAP

---

 **Activity Description** – A mind map is used to represent words, ideas, tasks or other information linked to and arranged around a central key word or topic. The mind map is similar to a word wall, but traces a particular line of thought or procedure.

 **When to use this activity** – You can use a mind map any time you introduce a safety procedure or a new topic. For example, you can create a mind map around the topic of barricading by placing that word in the center, then placing all related equipment and guidelines around the core concept. This is a particularly effective training tool for visual learners and English language learners.

 **Objective** – To encourage participation and discussion. To promote camaraderie and collaboration.

 **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation

 **In class time:** 10-15 minutes

### Steps before class

- Purchase large notecards or sentence strips from a teachers' supply store

### In class

- Introduce the topic you want to cover – for example safety, barricading or ground control.
- Hand out a few notecards or sentence strips to each trainee in the class.
- Ask each person to write a related word, idea, tool or procedure on a card, or choose a sentence strip. Then add their thoughts to the mind map.
- Encourage discussion and feedback.
- Post your own additions to the mind map.
- Leave the mind map on the wall and add to it if necessary throughout the day.
- Repeat this procedure for other topics. Leave the mind maps on the wall for reference. This is good reinforcement for visual learners and English language learners.

## Evaluation

Does the final mind map capture the key points related to the central concept? Did every trainee participate by posting something on the mind map? Was there engaged discussion about the topic?

# MODIFIED LECTURES:

## Small Bites Have More Impact

Lecture is sometimes a good way to convey information. However, having trainees listen to straight lecture is a very passive training strategy.

The average person stops listening to a lecture after about 15 to 20 minutes. Keeping your lectures bite sized is one of many ways to create more impact in training.

Lectures can be modified to fit our goal of active training, to help keep trainees paying attention and involved in the topic.






In this section you will find ways to modify lectures to make them active rather than passive.




5

# 5.1 LECTURE PAUSE

---

- 
**Activity description** – This simple active training method deserves its own page because it is so easy to forget. Most people stop paying attention to a lecture after about 15 – 20 minutes. Use a timer to remind yourself to stop talking after 15 or 20 minutes.
- 
**When to use this activity** – At any time during your training session.
- 
**Objective** – To give trainees the opportunity to ask questions or make comments about material that was recently covered.
- 
**Adult training characteristics addressed** – Experience and motivation
- 
**In-class time** – 2-5 minutes





## Steps before class

-  If you are using PowerPoint, add this to your slide in one or more places:

### **Pause to Refresh**

Are there any questions?






## In class

-  Set your timer for 15 or 20 minutes. When it rings, stop talking.
-  Pausing is a simple technique to encourage active listening. Anytime during a lecture – especially after making an important point or covering a complex procedure – you can just pause and stop talking. After waiting for several seconds, ask if anyone has a question or needs clarification. Some trainees will not ask questions unless you give them an opportunity to ask.
-  After answering a few questions, ask the group if there is anything else they'd like to share about this topic.
-  As you resume your lecture, you might want to set the timer again and do another activity in 15 or 20 minutes.

## Evaluation

This activity gives everyone the opportunity to ask questions. If there are few questions, this may mean the trainees understand the material presented. If there lots of questions and dialogue, you will know how to address the topic more clearly in the next training.

## 5.2 REFLECT AND EXPRESS

- 
**Activity description** – This activity helps trainees connect personally to the safety topic and share their experience with other trainees.
- 
**When to use this activity** – During a lecture – or just about any time in your training session.
- 
**Objectives** – To break up a lecture so that trainees pay closer attention. To encourage trainees to reflect on their personal experience and connect it to the training material. To build camaraderie.
- 
**Adult training characteristics addressed** – Experience and motivation
- 
**In-class time** – 10-15 minutes




### Steps before class

-  If using PowerPoint, add this text to a slide in the middle of your lecture:

#### **Reflect and Express**

What's your experience?

### In class


-  Stop lecturing when you get to the Reflect and Express notation in your PowerPoint.
-  Ask students to take a minute to reflect on their personal experience – at work or at home – of the topic (such as barricading, electrical safety or hearing protection). Use a timer to keep it to 30 seconds.
-  Invite trainees to take 1 minute to turn to the person next to them and share some of their reflections and experiences with the whole group. Allow a group discussion to continue for a few more minutes.


### Evaluation


This activity is successful when you hear about experience trainees have had with the topic. Did any new voices speak out? Were there any insights that particularly engaged dialogue within the group?

## 5.3 LECTURE BINGO


---

 **Activity description** – Lecture bingo makes a game out of listening for important key points mentioned in a lecture or video. Trainees have a bingo card with a different point in each of nine squares. As they hear a point in the lecture or video, they mark it off on their bingo board. The first person to fill in three squares – across, down or diagonal – wins a prize.

 **When to use this activity** – During a section of training when you'll be lecturing or showing a video. This helps prevent trainees from “zoning out” and promotes retention of the material.

 **Objectives** – To encourage active listening and participation in the lecture or video.

 **Adult training characteristics addressed** – Experience and motivation

 **In-class time** – The game unfolds as you are lecturing or showing a video. Plan for a minute or two to award the prize or prizes.

### Steps before class

- ✎ Make a list of nine or more key points that will be covered in the lecture or video.
- ✎ Create small bingo boards for each person in the class, with nine squares each – three across and three down. In each square, list a few key words that the trainees will hear if they pay close attention – like “wear safety gear” or “report an incident.”
- ✎ You can make all the boards the same – or vary them with different key points you want trainees to note.
- ✎ Decide on a small prize to give to the winner or winners.
- ✎ In your PowerPoint, before you start the lecture, include this text:

#### **Lecture Bingo**

Listen for key points

### In class

- ✎ Pass out the bingo boards and explain how the game works.
- ✎ Trainees listen and mark their card as key points are made during the lecture or video.



- When someone gets three vertical, horizontal or diagonal marks he or she yells “Bingo!”
- Check the bingo board and give the winner a prize.
- If the prize is won early in the lecture or video, you can resume the game without the first winner. Continue until the topic is covered.
- At the end of the lecture or video, you may want to recap the nine or more key points that were listed on the bingo boards.

## Suggestions

Lecture Bingo can also be played in pairs. This activity is especially good for spicing up annual refresher lectures that folks have heard many times.

## Example






- Lecture on Miners’ Rights

## Evaluation

How quickly the first trainee yelled “Bingo!” indicates very attentive listening skills. Did everyone participate in the game? Were there multiple winners throughout the lecture or video? This is evidence of good group participation.

## 5.4 ROLES FOR ACTIVE LISTENING

---

-  **Activity description** – Assign each trainee a specific role to encourage active listening during a lecture or video. There are four roles – critic, supporter, summarizer and mining dictionary. Each role listens for different key points.
-  **When to use this activity** – This works well for those times when you need to present a detailed explanation – or when you’re introducing the group to new information. It’s also great for the annual refresher, since your audience should already know the material.
-  **Objective** – To keep trainees actively listening throughout a lecture or video because everyone has a role to play.
-  **Adult training characteristics addressed** – Experience and motivation
-  **In-class time** – 5 minutes before the lecture or video, 20 minutes after

### Steps before class

- ✎ If using PowerPoint, add this text to your slide:

#### **Roles for Active Listening**

- Critic
- Supporter
- Summarizer
- Mining dictionary

### In class

- ✎ Ask the entire group to go around the room and number off from one to four.
- ✎ After everyone has a number, tell them what their role is – ones are critics, twos are supporters, threes are summarizers and fours are mining dictionaries.
- ✎ Explain what each role is to listen for during the lecture or video:






- **Critics** – find three points to argue with
  - **Supporters** – identify three specifics that support the main message
  - **Summarizers** – distill the main message and include examples
  - **Mining dictionaries** – listen for mining-specific language and make a list of words that might need to be defined for new miners or English-language learners.
- Pass around colored sheets of paper to represent each role – for example, red for critic, green for supporter, blue for summarizer and yellow for mining dictionary. Urge trainees to take notes as you talk or show the video.
  - Speak or show a video for no more than 20 minutes. Set a timer. Even if you have more to say, stop after 20 minutes and offer the group a three-minute break. This allows them to re-focus – and absorb the information they just heard.
  - At the end of the lecture or video, instruct trainees to gather with others assigned to their role in the four corners of the room.
  - Allow 10 minutes for each color group to discuss and share what they noted during the video or lecture. Set a timer.
  - Everyone returns to the large group.
  - Ask a trainee that was assigned to be a critic to highlight the arguable points – both from their own observations and the others in that group. Repeat with a supporter, a summarizer and a mining dictionary.
  - If time permits, repeat the process, asking other trainees for each of the four roles to add their input.
  - Wrap up the activity by thanking everyone for listening so closely and reinforcing key points to remember.

## Evaluation

Ask participants what they thought of this activity and what they learned by actively listening from their assigned perspective. What else did they hear?

# 5.5 LECTURE RECALL CHALLENGE

---

-  **Activity description** – Trainees are asked not to take any notes but to just listen intently for 15 minutes. At the end of that time they will write down everything they recall about the material that was just presented.
-  **When to use this activity** – Lecture recall is great for those times when you need to explain a topic in depth or lecture for up to 15 minutes at a time. This activity encourages trainees to concentrate and pay closer attention.
-  **Objectives** – To motivate trainees by changing their routine while listening to a lecture. To challenge trainees to actively listen.
-  **Adult training characteristics addressed** – Collaboration and motivation
-  **In-class time** – 10-15 minutes after your lecture

## Steps before class

- ✎ If using PowerPoint, add this text to your slide:

### **Lecture Recall**

Listen without taking notes

## In class

- ✎ Introduce the topic of the lecture. Then ask trainees to put down their pens, pencils, phones, computers and notebooks. Tell them “Right now – instead of taking any notes – I want you to listen intently to the lecture. After 15 minutes, I’ll ask you to write down everything you remember.”
- ✎ Set a timer for 15 minutes. Stop lecturing and ask trainees to write down everything they can remember. Give them 5 minutes to do this.
- ✎ Next ask the trainees to break up into small groups and discuss what they remembered. Take 5 minutes for this.

- Ask a volunteer from one small group to share the key points recalled. Then have someone from another group add other details that were not mentioned. Touch base with each small group and continue to expand the information recalled.

## Suggestion

You can turn this activity into a competition by giving a prize to the group that comes up with the most detailed information.

## Examples






- Transportation, emergency procedures and miners' rights

## Evaluation

If the small groups touched on most of the specifics covered in this training session, consider this activity a success. If they enjoy the challenge, it's even more successful.

## 5.6 LECTURE FEEDBACK

---

-  **Activity description** – Trainees gather in small groups to discuss a written question about the topic just covered, then share their answer with the entire group.
-  **When to use this activity** – This is great for motivating trainees to pay attention during lectures – especially when you are presenting a complex topic. It’s also an engaging way to quiz trainees right after the material is presented, instead of waiting until the end of the day.
-  **Objectives** – To encourage trainees to listen attentively so they can hear the answers to the questions at hand. To work together in small groups and build camaraderie.
-  **Adult training characteristics addressed** – Experience, collaboration and motivation
-  **In-class time** – 10-15 minutes after your lecture

### Steps before class

- ↘ If using PowerPoint, add this text:

#### **Lecture Feedback**

Answer written questions

- ↘ Prepare several questions about the topic you will be covering. Write the questions out and make enough copies to distribute to several small groups to use. Here are some suggestions:
  - What is a hazard?
  - What’s a shortcut?
  - How do we control hazards?
  - What is a control?

### In class

- ↘ Have trainees gather in groups of three or four. Give each group a discussion question. Before you start your lecture, tell trainees that you want them to actively listen and be prepared to provide Lecture Feedback when you’ve finished presenting the information.

- Set a timer for 15-20 minutes. Stop lecturing when it rings and ask each small group to discuss and to prepare their answer the question. Give them 5 minutes for this.
- Invite a volunteer from each group to share their question and answer with the whole group. Encourage participation from others to add more details.

## Example

- Underground self rescuers

## Evaluation

This activity is successful when the answers trainees come up with are accurate. (If their answers are vague or incorrect, you might want to revise your lecture notes to provide more detail.) If everyone works together and contributes in the small groups, this activity is especially successful.





# HIGH-IMPACT ACTIVITIES:

## What If...






**T**his section includes high-impact activities designed to create an emotional response. When you can get trainees to feel something at a deep personal level, they embrace the value of safety training and care more about their safety and that of others.



6

# 6.1 MINI CASES

---

-  **Activity description** – Real-life incidents can be powerful tools to engage miners as they review what happened, offer interpretations, form judgments and make informed recommendations. Mini case histories are drawn from actual incident reports, fatalgrams and other industry records.
-  **When to use this activity** – This activity works well at any point in the training – to re-engage the trainees if they appear tired or disinterested, to introduce a new topic or to assess the group’s grasp of the topic just covered.
-  **Objectives** – To encourage trainees to think critically about the mine safety topic and apply it to actual mining incidents.
-  **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation
-  **In-class time** – 20-30 minutes

## Steps before class

- ✎ Create four to six real-world scenarios for this activity. Cases can be created from incident reports, accidents or a set of facts about a safety concept. Write a brief mini case history of the event in a few short sentences. Each incident should lead to a specific outcome – such as a task, a decision or a recommendation.
- ✎ If using PowerPoint, add this text to your slide:

### **Mini Cases**

What went wrong? What would you do?

## In class

- ✎ Divide trainees into groups of three or four.
- ✎ Distribute the mini cases. Depending on the size of your group, there may be some repetition.
- ✎ Instruct each group to ask these two questions – What went wrong? What would you do? Then the trainees will come to an agreement about a follow up to the incident – such as a specific task, decision or recommendation.






- Set your timer for 10 minutes.
- Bring the trainees back together. Review and discuss the small-group responses with the whole group.

## Evaluation

The small-group responses will indicate how well trainees understood the incidents and the depth of their thinking about factors that contributed to their recommendations. Was the whole group engaged in the wrap-up discussion? Did they also seem to grasp the key points?

## 6.2 BLIND PUZZLE

---

-  **Activity description** – Trainees work in pairs to put a puzzle together. One person is blindfolded and needs to follow the verbal cues from the other to put the puzzle together.
-  **When to use this activity** – This works well at any point in safety training and helps refocus the group.
-  **Objectives** – To reinforce the importance of safety by giving trainees a sample of what life could be like without vision. To build camaraderie.
-  **Adult training characteristics addressed** – Collaboration, problem-solving and motivation
-  **In class time:** 10-15 minutes

### Steps before class

- ✎ If using PowerPoint, add this text to your slide:

#### **Blind Puzzle**

- ✎ Find simple puzzles from a toy store to use for this activity
- ✎ Bring bandanas to use as blindfolds

### In class






- ✎ Ask the group to break apart and work in pairs. It's time to build a puzzle. One person is blindfolded and the other gives verbal directions to the blindfolded person to help him or her find the puzzle pieces and fit them together. The person giving directions cannot help – aside from giving verbal directions.
- ✎ After 10 or 15 minutes, stop everyone and ask the blindfolded people to take the blindfolds off and look around.
- ✎ Talk as a group about this experience – What was it like to be blindfolded? How was it to listen and follow only verbal cues? What was it like to be the person giving directions? Were your directions easily understood and followed?

## Evaluation

This activity is successful when trainees get into it and really “go there” in their imaginations. This can be an emotional activity. You know it had an impact when comments in the discussion are meaningful and to the point.

## 6.3 SIT AND STAND

---

-  **Activity description** – Great for large groups, this activity gets people up out of their seats, engaged and answering questions.
-  **When to use this activity** – This is a good tool to use before introducing a serious topic involving incident reports or fatalgrams.
-  **Objectives** – To get trainees on their feet. To increase camaraderie. To connect emotionally to the importance of safety.
-  **Adult training characteristics addressed** – Experience and motivation
-  **In-class time** – 10-15 minutes

### Steps before class

- ✎ If using PowerPoint, add this text:

#### **Sit and Stand**

- ✎ Prepare a series of questions that can be answered either yes or no.

### In class

- ✎ Ask everyone to stand. Explain that you will ask a series of questions that can be answered either yes or no. The trainees vote yes by continuing to stand. They vote no by sitting down.
- ✎ Start by asking the trainees if they have grandchildren? Those who do remain standing. Then ask if they have 10 or more grandchildren?
- ✎ Now tell everyone to stand again. Move on to questions that are related to mining, such as:
  - Have you worked in the mine industry for more than 10 years?
  - More than 20 years?
  - More than 30 years?






- The final questions are closer to the mine safety topic that you plan to discuss next:
  - Have you ever lost somebody close to you?
  - Was it a work-related incident?
- These questions can help people connect on an emotional level to the importance of mine safety.

## Evaluation

At a minimum you get people moving and paying attention. At a maximum, you establish an emotional connection so your trainees are more likely to be engaged in the next step of the training.

## 6.4 MISSING LIMB

---

-  **Activity description** – Trainees work in small groups to build a house of cards. In each group, one person can use only their non-dominant hand.
-  **When to use this activity** – This works well at any point in safety training as an engaging transition to a new topic.
-  **Objectives** – To reinforce the importance of safety by giving trainees a minor example of what life could be like with a missing arm or hand. To build camaraderie.
-  **Adult training characteristics addressed** – Collaboration and motivation
-  **In-class time** – 10-15 minutes

### Steps before class

- ✎ If using PowerPoint, add this text to your slide:

#### **Missing Limb**

- ✎ Gather strips of cloth or belts to tie trainees' hands behind their backs. Also bring decks of playing cards for each group.

### In class


- ✎ Break into small groups of up to four people. Ask one member of each group to volunteer to work with one hand only. Then tie the dominant hand behind the trainee's back using fabric strips or a belt. This means if the trainee is right-handed, that is the arm they cannot use.
- ✎ Give each group a deck of cards to use to build a house of cards. Each member places one card in rotation.
- ✎ After 10 or 15 minutes, stop everyone and untie the arms of the volunteers.
- ✎ Discuss this activity: What was it like to try to place the card with only arm? What was it like for others playing the game with them? What would it be like to break your arm or even lose a limb permanently?





## Evaluation

This can be an emotional activity. Consider it a success when trainees “get it” and discuss the challenge of working with just one hand. It may also encourage compassion and empathy as other trainees indicate their frustration of wanting to help.

## 6.5 LAST WORDS

 **Activity description** – This is one of the most powerful and unforgettable of the safety training activities. Trainees are asked to imagine being trapped in a mine, running out of oxygen. Tell them, “You have three minutes to write whatever you want to whomever you want. What would you say?”

 **When to use this activity** – In any safety training, but especially if you feel the group is not paying close attention. This activity powerfully demonstrates the message that mine safety is a matter of life or death.

 **Why use this activity** – To simulate the final-moments fatal result of unsafe practices and to drive home the importance of learning and implementing life-saving mine safety practices – for themselves and others.

 **Adult training characteristics addressed** – Experience and motivation

 **In-class time** – 15-20 minutes

### Steps before class

✎ If using PowerPoint, add this text to your slide:

#### **Last Words**

What would you say to your loved ones if you had only minutes of oxygen remaining?

### Steps in class

- ✎ Explain to the group, “Next we are going to do a thought experiment based on a real mining disaster in 1902 where more than 100 women were instantly widowed and close to a thousand children lost their fathers.”
- ✎ Read aloud the details of the event. “On the morning of May 19th, 1902, a huge explosion ripped through Fraterville Coal Mine in Tennessee. The devastating power instantly killed most of the 216 miners who were below ground. For the 26 who survived the initial blast, a side passage of the mine proved to be a safe haven, but not for long. When rescuers eventually reached them, all had suffocated. Found next to a number of those 26 bodies were letters to loved ones.” \*

- ✎ If you are using PowerPoint you can show a photo of a letter written by a miner named Jacob who died in the 1902 disaster. (Find this at: <http://www.lettersofnote.com/2014/01/oh-god-for-one-more-breath.html>)
- ✎ Now ask the group to imagine their own fatal disaster. “Imagine that you have been in a mining accident and you are trapped. You know – you just know – that you will not survive. There is no way the rescue crew can reach you in time. You must find something to write on – even if all you have is a scrap of paper in your wallet. You have a pen in your pocket, so you are lucky. Oxygen is running out. You have the next three minutes to write everything you want to say to everyone you want to say it to before you take your last breath. These are your final words. Begin writing now. I will tell you when your time is up.”
- ✎ You might want to play the song “Say” by John Mayer for even more impact while trainees write their last words. The song lasts 4 minutes. We recommend that you play the music only, without the video. Here’s the link: <https://www.youtube.com/watch?v=ZPLmPziTaho>
- ✎ After the time is up, have everyone stop writing. Give them a few moments to gather their thoughts. This activity can be very emotional – and that’s good. You want it to be powerful and unforgettable.
- ✎ Ask if anyone would like to share their experience or the thoughts this activity evoked.

## Suggestion

You might want to schedule this activity just before a break so that participants have the opportunity to interact and share their thoughts afterward.

## Evaluation

Don’t worry if your trainees are very quiet during this process. That may be an indication that this activity is having a strong impact on them. If some trainees share their experience, that’s a powerful indication of success.

\* Source – The United Mine Workers of America

<http://www.lettersofnote.com/2014/01/oh-god-for-one-more-breath.htm>



# FRESH PERSPECTIVE:

## Let Trainees Lead

**H**ave you ever heard the saying “the best way to learn is to teach?”

One of the best things you can do as an active trainer is to let your trainees teach one another. This allows them to draw on their personal experience and share their knowledge.

Adults like being involved in their own learning. And it’s easier to remember concepts we’ve had to teach others. Your role in this process is to facilitate, keep things on track and fill in the blanks of any missing information.


The activities in this section can help you motivate your trainees to teach and learn.





7

# 7.1 EXPLAIN THAT REGULATION

---

 **Activity description** – Safety regulations are written in language that can be difficult to understand, especially for new miners. This activity will help trainees interpret the language they will encounter in the MSDS, CFR 30 and other mining industry materials.

 **When to use this activity** – This works well for new miner training or annual refresher.

 **Objectives** – To encourage trainees to collaborate. To have experienced miners use their knowledge of the industry to simplify complex regulations for new miners.

 **Adult training characteristics addressed** – Experience, collaboration, problem-solving and motivation

 **In-class time** – 25 minutes

## Steps before class

✎ If using PowerPoint, add this text:

### **Explain That Regulation**

✎ Run copies of several current citations, including the regulations cited.

## In class

- ✎ Ask trainees to break into several small groups. Give each one a safety regulation. Tell them they have 3 minutes to translate this into simple understandable “plain language” to share with the group.
- ✎ Each group gets 1 minute to share their simpler version of the safety concept to the whole group.
- ✎ In follow-up discussion, be sure that all mining-specific terms are clearly defined. Encourage participation by asking the group “Was this a helpful exercise? Would you be able to explain these citations and regulations back at your work site?”

## Example







- CFR 56.14213 – Ventilation and shielding for welding – “Welding operations shall be shielded when performed at locations where arc flash could be hazardous to persons, and all welding operations shall be well ventilated.”
  
- Here’s what to look for in the group answers. Did they translate or explain the following terms?
  - Arc flash
  - CFR
  - Shielding
  - Ventilation

## Evaluation

The “plain language” translations that the groups develop and share are a good indication of how effective of this exercise was. If the trainees actively participated in the follow up discussion, this activity was a success.

# 7.2 DIAGRAM A PROCEDURE

---

-  **Activity description** – This activity will help create a visual aid for a work process or safety procedure that has several steps.
-  **When to use this activity** – This activity is good to use for first aid procedures, hazard communication or escape and emergency plans.
-  **Objectives** – Adults learn well when they get an opportunity to demonstrate what they know. This activity is really helpful for English language learners, new miners and those who struggle with reading and writing, because it conveys information graphically.
-  **Adult training characteristics addressed** – Experience and collaboration
-  **In-class time** – 10-15 minutes
-  **Materials needed** – White board or flip chart and marker

## Steps in before class

- ✎ If using PowerPoint, add this text:

### **Diagram a Procedure**

## In class

- ✎ Ask for a volunteer to draw the diagram on the whiteboard or on paper.
- ✎ As you explain the steps in the procedure, the volunteer sketches them in, creating a flow chart.
- ✎ The whole class can contribute by offering suggestions. Creativity is welcome!
- ✎ Debrief with the group. Ask trainees if seeing the procedure in this way helps them grasp it and understand it better? Do they think they'll be able to remember more now that they've seen it in this visual form?

## Example

- ✎ Roof bolting or emergency procedures









## Evaluation

Success of this activity depends on how well you communicate the procedure and how well the person drawing the diagram understands. The goal is to see the process clearly depicted using symbols and a timeline. If the group contributed encouragement and specific ideas, this demonstrates trainees were engaged in the activity.

## 7.3 JIGSAW ACTIVITY

---

-  **Activity description** – In this activity, trainees become experts on a small piece of material, then teach others what they learned. Like a jigsaw puzzle, all pieces of information gradually come together.
-  **When to use this activity** – This activity works well with Safety Data Sheets, where each trainee can become an expert on a common chemical found on site. This encourages trainees to learn, then share their knowledge.
-  **Objectives** – To promote teamwork and cooperative learning. To break material into smaller pieces which are easier to remember. To allow students to learn from each other, rather than just from the instructor.
-  **Adult training characteristics addressed** – Experience and collaboration
-  **In-class time** – 30-45 minutes
-  **Materials needed** – 3x5 cards, tape, popsicle sticks and a timer

### Steps before class

- ✎ If using PowerPoint, add this text:

#### **Jigsaw Activity**

Learn and share

### In class

- ✎ In this activity the example used is the topic of chemical exposure. You also can use this activity with other topics.
- ✎ **Round 1** – Number off from one to four. Each group moves to one corner of the room. In this round, everyone in the small group will be reading or becoming an expert on the same subject or topic.
  - First the trainees read the SDS section about their assigned chemical. Then they discuss and identify the most important pieces of information.






- Each trainee will make several cards with important information on one side and the definition, examples or descriptions on the other side. For this, you can use index cards, then tape or glue them to popsicle sticks to create cards with handles that the trainees will use as teaching tools in subsequent rounds.
- **Round 2** – Now your Round 1 groups count off letters – A, B, C, D – to form four new groups joining trainees who are now experts on other chemicals.
  - Each trainee expert in the new group has 1 minute to share what he or she learned, using the summary information cards. These trainees can then ask the group if anyone has ever encountered this chemical and offer to answer any questions.
- Bring the whole group back together. Ask if any of the Round 2 groups have specific highlights they'd like to share. Then discuss how this jigsaw activity went – the trainees' impressions, difficulties and challenges. Ask how this relates to their mine site. What common chemicals and cleaning products are on site?
- **Remember** – It is easier to remember information we've had to teach others. That's one reason this activity has impact.

## Evaluation

This innovative activity should engage the participants. The level of participation in the small groups and in the wrap-up discussion will indicate how well this activity helped trainees both learn and teach.

## 7.4 WHAT'S THE PROBLEM?

---

-  **Activity description** – This activity is like filling in the blanks – asking trainees to identify all the elements involved at a recent incident at your site.
-  **When to use this activity** – Use this activity to review incident reports and bring home the message that these circumstances could have led to fatalities.
-  **Objectives** – To encourage trainees to think more about the specific causes and conditions that create unsafe working conditions. To emphasize that everyone needs to be vigilant and react quickly on site to ensure safe conditions.
-  **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation
-  **In-class time** – 20 minutes

### Steps before class

- ✎ If using PowerPoint, add this text to your slide:

#### What's the Problem?

- Persons
  - Places
  - Things
  - Unknown elements
  - Variables
- ✎ Review recent incident reports and pick one to use for this activity.

### In class

- ✎ Divide the class into pairs or several small groups.
- ✎ Read the recent incident report.
- ✎ Ask each group to identify as many the contributing factors as possible. Set a timer for 2 minutes.






- Have groups share the factors they identified. Discuss the incident with the whole group. Point out any factors they may have overlooked. Underscore the importance of watching for these situations at all times.
- Award a prize to the group with the most comprehensive list.

## Evaluation

The success of this activity is determined by how thoroughly the trainees assess the factors that could have contributed to the incident. Another indication is the level of participation in the full group discussion.

# 7.5 RESPONSIVE LECTURE

---

-  **Activity description** – This is an open-ended lecture activity. It begins with trainees telling you what they already know about the topic and what questions they would like answered. You really have to be on your toes and know your material when you use this activity.
-  **When to use this activity** – This is especially good for the annual refresher because it lets trainees review what they know, and tell you what they would like to know more about.
-  **Objectives** – To encourage trainees to think about their level of knowledge and areas where they would like more detail or clarification. To focus on safety issues or questions that are relevant and important to them.
-  **Adult training characteristics addressed** – Experience and motivation
-  **In-class time** – 20 minutes

## Steps before class

- ✎ If using PowerPoint, add this text to your slide:

### **Responsive Lecture**

What do you want to learn more about?

## In class






- ✎ Tell the group that they will be guiding the next topic of your lecture.
- ✎ Ask them to work in pairs or small groups to detail what they already know about the topic – and come up with questions for you to answer. Allow 5 minutes for this. Set a timer.
- ✎ Invite each group to share their knowledge with the whole group – and the questions they would like you to address. Give each group up to 2 minutes for this.
- ✎ Write down the questions and discuss which ones have the highest priority.
- ✎ Answer those questions. This becomes your lecture on the topic. You can now “fill in the blanks” of their understanding of this safety topic.

## Evaluation

When trainees share what they already know, you have successfully engaged them in this activity. You've also learned where the gaps in their knowledge are and what they would like to learn more about.

# 7.6 KNOWLEDGE HUNT

---

-  **Activity description** – This game lets you find out how much your trainees already know about a safety topic.
-  **When to use this activity** – Use this activity when you introduce a safety topic, before you begin your lecture. This activity is particularly good for annual refresher.
-  **Objectives** – To get trainees talking about what they know based on their personal experience. To promote camaraderie and friendly competition.
-  **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation
-  **In-class time** – 15-20 minutes

## Steps before class

- ↘ If using PowerPoint, add this text:

### **Knowledge Hunt**

## In class

- ↘ Introduce the next topic you will be teaching. Break into groups of three or four.
- ↘ Challenge each group to write down as much as they can about the topic. Give them 4 minutes to “hunt” for this knowledge in their personal experience. Set a timer.
- ↘ Invite each member of the small group to share a key piece of knowledge they discussed.
- ↘ Thank the trainees for sharing what they know about the topic with the group. Give the group that demonstrated the most knowledge on the topic a prize.

## Examples

- ↘ Emergency procedures and first aid

## Evaluation

When you ask each trainee to give share a specific piece of knowledge, you have successfully engaged the entire group. What they share also indicates how well they know the topic.



## THINK BIG:

# Engage Large Groups






**M**any times there are more than 30 trainees in a group – which can indeed be a challenge. Yet you can still use active training tools to encourage trainees to tune in – not out. The activities in this section can be used to engage large groups, build camaraderie and encourage active participation.



8

# 8.1 ON THE FENCE



---

- 
**Activity description** – Trainees stand up and move to different parts of the room to indicate a yes or no answer to a series of questions. This activity can spark debate and discussion.
- 
**When to use this activity** – This activity is appropriate for anytime during training, but especially in the middle of the day when energy may be lagging. On the Fence gets people moving and encourages discussion of complex topics in which opinions vary.
- 
**Objectives** – To allow trainees vote with their feet, creating a visual display of how opinions vary. To re-energize and engage trainees. To stimulate discussion.
- 
**Adult training characteristics addressed** – Experience and motivation
- 
**In-class time** – 10-15 minutes







## Steps before class

-  If using PowerPoint, add this text:

### On the Fence

-  Prepare a series of questions that can be answered either true or false.
-  Pick topics that are complex enough to yield differing opinions. This can stimulate class discussion.

## In class

-  Ask trainees to stand and form a straight line in the middle of the room.
-  Now read a statement and ask trainees to decide whether it is true or false.
-  Direct those who feel the statement is true to take one large step to the left and those who feel the statement is false to take one large step to the right.
-  After everyone has taken their position, ask trainees to volunteer to explain why they thought the statement was true. Then ask those who answered false why they answered false. Encourage discussion. Clarify any inaccuracies or misconceptions.
-  Have trainees again form a single line and ask another question. Repeat the process.
-  Recap key points of the discussion and thank everyone for participating.

## Examples

### True or false?






- ✎ Mobile equipment shall not be left unattended unless the controls are placed in the park position and the parking brake, if provided, is set. **True.**
  - 30 CFR § 56.14207 – Parking Procedures for Unattended Equipment
- ✎ When parked on a grade that is 20 percent or greater, the wheels or tracks of mobile equipment shall be either chocked or turned into a bank. **False.** *The standard simply states “when parked on a grade.”*
  - 30 CFR § 56.14207 – Parking Procedures for Unattended Equipment
- ✎ Parking in a parking ditch can change the normal distance between the bottom step or rung and the ground. **True.** *Always be aware of the possible change in distance when ascending/descending mobile equipment.*
- ✎ Always maintain three points of contact fully through the mount and dismount of any mobile equipment and jump down off the bottom step. **False.** *NEVER jump off any step. Mounting and dismounting mobile equipment are leading causal factors in many slip, trip and fall injuries every year.*

## Evaluation

Just having everyone stand for this activity can re-energize the group and is a success. How well did trainees explain the thinking behind for their answers? This is another indication of the impact of the activity.

## 8.2 STATIONS

---

-  **Activity description** – Trainees form small groups and move from station to station, learning about a specific safety topic or concept. They rotate until they have visited every station.
-  **When to use this activity** – This is a good way to re-engage trainees after a break. This also works well for hazard recognition exercises.
-  **Objectives** – To allow trainees to take responsibility for their own learning and experience hands-on activities. To encourage interaction and discussion.
-  **Adult learning characteristics addressed** – Experience, collaboration and motivation
-  **In-class time** – 20-30 minutes

### Steps before class

- ✎ If using PowerPoint, add this text:

#### Stations

- ✎ Make signs to identify each of the four stations.
- ✎ This activity requires some set-up time. You may want to have the stations in place at the beginning of the day or set them up while everyone is on lunch break.

### In class






- ✎ Tell the trainees that there are multiple stations set up around the room for them to visit and learn more about several mine safety topics.
- ✎ Ask them to break into small groups of three or four, then pick the station which to visit.
- ✎ Set a timer for 5 or 6 minutes. When it rings, the small groups rotate to another station.
- ✎ Reset the timer. Repeat until each group has visited all stations. During this time you can walk around the room to ask and answer questions.
- ✎ After each group has visited every station, reassemble and discuss this activity. Questions to consider:
  - What surprised you about the stations?

- What did you learn that you didn't know before?
- What was confusing to you?
- What would you like to know more about?

## Evaluation

Observe the interactions of the trainees as their small group visits the stations. Do they appear interested in the topic? Are they engaging in active discussions? Those are indications of success. Contributions to the closing discussion also will indicate how closely the trainees paid attention and what they learned.

## 8.3 HANDLING HECKLERS

- 
**Activity description** – This is not exactly an activity, but a means of managing disruptive trainees. This could be a heckler who is deliberately rude and challenging or someone who just won't quit trying to make a point.
- 
**When to use this activity** – Keep these strategies in mind for handling an unwanted disruption. Use them if someone makes a comment that is challenging or out of line, or in a situation that develops between two confrontive trainees. You can do this during activities as well as lectures.
- 
**Objectives** – To acknowledge the trainee who is being disruptive, to diffuse the situation and to bring everyone's attention back to the topic.
- 
**Adult training characteristics addressed** – Collaboration and motivation
- 
**In-class time** – 1-3 minutes

### Steps before class

- ↘ Review and incorporate these two training activities in this handbook – Develop Training Guidelines and Parking Lot. You can use both of these tools to remind trainees of expectations. Be sure to incorporate these activities early in your training session.

### In class

- ↘ The first step to handling hecklers is to quietly take a deep breath and acknowledge that this is a difficult and challenging moment. You can do this in just a few seconds and it will make a big difference in how the situation unfolds.
- ↘ Remind the trainee who is being disruptive that the group agreed to key guidelines, such as:
  - Respect everyone. Every question and opinion is valued.
  - Do not interrupt when someone is speaking.
- ↘ Ask the group for feedback.
  - “What do the rest of you think about that comment?”
  - “Do you feel that it's time to move on and let someone else speak?”






- “Which of our group guidelines might be in violation right now?”
- Use the “parking” technique to acknowledge the disruptive trainee and get the conversation back on track. Say something like “We appreciate your input. Obviously this topic could use more discussion – so for now we’re going to put this on the parking lot list and come back to it later.”
- **Remember** – When you turn problem situations over to the whole group you are demonstrating that you value and respect each individual’s input. Training the group to monitor itself is an important skill for mine safety practice on site. Knowing how to diffuse intense conversations is a valuable safety lesson – because distracted or overly emotional miners might be more likely to make mistakes and cause harm on site. This impacts everyone.

## Evaluation

If you and the group diffuse the situation or redirect the disruptive trainee, this was successful.

## 8.4 ANSWER CARDS

---



- 
**Activity description** – Give trainees answer cards as a novel way to encourage active listening and participation.
- 
**When to use this activity** – This is excellent for large groups and helps trainees connect with the topic and demonstrate differing opinions.
- 
**Objectives** – To engage trainees in active listening. To improve participation and encourage discussion.
- 
**Adult training characteristics addressed:** Experience and motivation
- 
**In-class time** – 10-15 minutes

### Steps before class





-  If using PowerPoint, add this text:

#### **Answer Cards**

Which way do you vote?

-  Create colorful wands for answering questions. You can make these from pieces of poster board and paint stir sticks. Use one color for yes, another one for no. You also can make sticks of different colors for true and false.
-  Prepare questions on the topic you want to address or use quiz questions to get feedback from the group.

### In class

-  Pass out the Answer Cards while telling the group you want to see how much they know. You plan to ask them a series of questions in quick succession and they will raise their answer cards.
-  Note whether there is consensus. If most of the trainees are answering the same way, keep asking questions. Whenever the group is divided, stop and ask for volunteers to explain why they think the answer is true or false.
-  Resume asking questions and pausing when the group decision is obviously split.
-  This encourages trainees to draw upon their own experience and share their perspective with others.








## Evaluation

This activity is successful when the group enjoys participating. When the group answers are divided, taking time to discuss and clarify can result in greater understanding of the material.

# 8.5 VIDEO FILL IN THE BLANK

---

-  **Activity description** – Trainees watch a short section of a video. When the video is paused, trainees think ahead and fill in the blanks of what is about to happen.
-  **When to use this activity** – Use this activity with training videos that are longer than five minutes. Short video clips can spark discussion and make the information more personal and interesting.
-  **Objectives** – To encourage critical thinking and problem solving. To allow trainees to draw from their own experiences. To check understanding.
-  **Adult training characteristics addressed** – Experience, collaboration, problem solving and motivation
-  **In-class time:** 10-15 minutes

## Steps before class

- ✎ If using PowerPoint, add this text:

### **Video Fill in the Blank**

What happens next?

- ✎ Select the video(s) you want to use and mark the start and end times of the sections you will show the trainees. Indicate what the “blank” is that you want trainees to discuss and make a note about the key points you’d like them to address.
- ✎ Develop a list of questions you can ask the trainees about what they saw in each clip and what they think happens next. These questions can help guide the group discussion.

## In class

- ✎ Play a brief segment of a video clip and pause it at a key moment.
- ✎ Ask trainees to say aloud what they think happens next in the video. This encourages trainees to participate and allows them to draw upon their own experiences and knowledge.
- ✎ View next video clip.

- Discuss with the entire group the potential outcomes and differences between the video outcome and what they imagined. Allow 5 minutes.
- This activity can give relevance to abstract concepts, and reinforce cause-and-effect sequences. It also can show how experience or background plays a role in perceptions.

## Evaluation

A primary goal of this activity is to encourage critical thinking and the exchange of ideas about the likely outcome of the video. Did the trainees actively participate? Were their observations valid? Did the whole group seem to gain new insights?



# PUNCH UP YOUR POWER POINT:

## Add New Tools

**A** good PowerPoint introduces mine safety topics, reinforces key messages, provides instructions for activities, and helps you keep the day moving along.

Think of PowerPoint as a visual aid to reinforce your key points at a glance.

To effectively connect with your trainees, you need to do more than lecture. That's why you want to streamline your PowerPoint and be sure your slides have impact.

Remember – you never want talk for more than 20 minutes. Set a timer if need be.

Add the active training tools in this handbook to your PowerPoint slides. Also consider inserting the occasional cartoon or stop to show a brief video. This will help keep your trainees actively engaged in their training.

Now take a look at your PowerPoint slides and punch them up based on the following insights.



## Workplace Vocabulary

Every industry, workplace and community has its own language. Words can have different meanings depending on who's using them and where.

The mining industry definitely has its own vocabulary, plus plenty of abbreviations and slang terms that can sound quite foreign to new miners. Your job is to identify and explain mining-specific terms that new miners will hear, see and use at the mine site in plain language,

**Tip** – As you go through your PowerPoint slides, look for common mining terms that you understand but others many not. Then define them.

## Plain Language

Plain language is the way we talk in everyday life.

Safety standards and mining regulations are not written in plain language. Your job is to translate “industry speak” into plain language that is easy to understand. This is particularly beneficial for those who are new to mining and English language learners.

**Tip** – Two heads are better than one. Practice using plain language to explain a safety concept to someone who is not in mining. Let that person help you simplify the message.

## Acronyms and Slang

The mining industry is full of acronyms and slang. It is important for trainees to learn formal terms if they will come into contact with them – yet it is equally important for them to become familiar with the slang terms that they will encounter at the work site. Knowing the lingo helps new miners integrate more quickly with their coworkers.

**Tip** – Check out the Mining Acronym Game or introduce the Word Wall activity.

## Bullet Points and Word Counts

Use short phrases, bullet points or key words only. If you put full sentences on a PowerPoint slide, your trainees will begin reading and be less likely to pay attention to what you are saying.

**Tip** – The recommended word count for a PowerPoint slide is 33 words maximum – or **4** bullet points of **5** words each.

## Slide Design

*This font may be fun, but it is NOT easy to read.*

Stick to easy-to-read clear fonts that are not distracting or fancy.

Slides are more effective when the content is brief and the slide is uncluttered. Text on top of photographs is often quite difficult to read.

**Tip** – Use strong contrasting colors for the text and background. Many people have difficulty reading red, so avoid that. Yellow also can be hard to read.

## PowerPoint Checklist

As you go through your PowerPoint slides ask yourself these additional questions:

- Is the slide visually attractive?
- Is the purpose or topic clear?
- Does the title of the slide match the content?
- Are your dos and don'ts clearly labeled?
- Are graphs, charts, maps or illustrations clear?
- Are key messages brief and bulleted, with no complete sentences?
- Are bold, italics or underlining used to highlight important terms?
- Is the font size large enough to see from the back of a room?
- Is the font easy to read?
- Is the line spacing 1.5 or greater?
- Is there good contrast between the text and the background colors?

# ENERGIZE YOUR TRAINING: SHARE YOUR INSIGHTS

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Thank you for using this mine safety training handbook. We want to know what you and your trainees think of these activities. We encourage you to evaluate the activities as you use them – and to share your feedback with us.

Every activity in this handbook ends with a suggestion about how to evaluate its success. Let us know what impact these new tools have on your training and your trainees.

You'll want to assess the content of the activity as well as the attention and retention of your trainees. Did they actively participate in their own training? Were the directions easy to understand and implement? Did these activities energize you and your trainees? Which ones were most effective?

Please make notes and share your feedback with us at any time. We plan to update and revise this handbook based on your experiences. Please share your thoughts and comments with us at any time.

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MINING SAFETY  
AND HEALTH

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